

Nature

Eye on

TEXAS
PARKS &
WILDLIFE

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A publication of the Wildlife Division — Getting Texans Involved

Brush

The extreme southern tip of our great state is a tangle of brush and thorn that is often unappreciated. Lacking in artistic splendor or decorative allure, this area is rich in diversity and unique in biodiversity.

Our authors this month cover a broad spectrum as they explore the challenges facing the South Texas Brushlands. Matt Wagner closes the chapter with a look at water—probably the greatest challenge facing land managers in this land of drought and flood.

Enjoy our trip through the brushlands, where beauty truly is in the eye of the beholder!



Challenges and change in the thornscrub

By Josh Rose

Brushlands. Thornscrub. Not charismatic or exotic-sounding names. Not anything that is likely to send people running to call their travel agents. For birders and nature enthusiasts, though, the South Texas Brushlands ecoregion does exactly that. Ecotourism brings millions of dollars per year into South Texas and, for some towns, constitutes a significant factor in the local economy. Ironically, the section of the brushlands where ecotourists spend most of their time and money has lost a massive portion of its wildlife habitat to agriculture and development, and most of the little remaining habitat is critically threatened by man-made environmental challenges. As the tide of tourist dollars has made local communities aware of the value of the remaining fragments, government agencies and landowners have begun protecting and managing the last of the area's native habitat, and even reversing the tide and expanding habitat through rehabilitation of once-cleared land.

Two qualities make the brushlands of South Texas a magnet for bird and nature lovers. The first is biodiversity. Just the four southernmost counties, known collectively as the Lower Rio Grande Valley (LRGV for short), have had over 500 bird species documented within their borders, more than 46 entire states of the United States! Butterfly diversity, over 300 species, is similarly beyond any other area of the country. Throw in dragonflies, damselflies, mammals, reptiles,

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The Lower Rio Grande Valley has the greatest biodiversity and highest concentration of subtropical species within the brushlands region.



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4200 Smith School Rd., Austin, TX 78744,
telephone (800) 792-1112 toll free,
or (512) 389-4800 or visit our Web site for
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Wildcats

and the South Texas brushland

By Michael Tewes

It's twilight. The bobcat sits in a frozen crouch, arch-backed and coiled like a tight spring, eyes and ears focused forward. It is watching silently, waiting for the rabbit to make a mistake.

Poor evening light and lack of surrounding movement assure the rabbit that it can venture into the open for a short distance to taste the grassy morsel just out of reach. That's a fatal mistake. The feline coil is released in a short but intense burst. Pouncing with its forepaws, the bobcat pins its dinner and quickly applies its canines to the rabbit's neck. Rabbit is served.

This isn't a graphic nature film, just an action occurring hundreds of times daily in Texas by one of nature's most efficient predators—wildcats. If you spend time in the outdoors, you may be lucky enough to see this predator in action, particularly in the South Texas Brushlands. South Texas has some of the highest densities of bobcats occurring in the United States. The abundance of their primary prey, cottontail rabbits and cotton rats, makes this region a cornucopia for bobcats.

Many other groups of wildlife have high diversity in the South Texas Brushlands including amphibians, reptiles and birds. Shrubs are decorated with feathered jewels like the green jay, kiskadee, painted bunting, vermilion flycatcher, and many other birds found in this border region adjacent to Mexico. This diversity makes the area a prime destination for bird-watchers and other wildlife-watchers. It seems that diversity begets diversity.

This diversity is also reflected in the wildcats. South Texas is home to more different kinds of wildcats than any other place in the United States. This diversity includes mountain lion, bobcat, ocelot and possibly the jaguarundi. Historically, jaguar also roamed southern Texas, and there was one report of a margay on the border during the 1850s.

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Ocelot

[Challenges and change in the thornscrub,
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plants, and all the rest, and even long-time residents never run out of new creatures to discover.

The other quality that attracts so many ecotourists to this area is its proximity to the tropics. Many species of the region are unknown further north, and a number of these are brilliantly colored, or have interesting behavior, or are otherwise strikingly new and different to the vast majority of visitors. The neon hues of the green jay and altamira oriole; the unmistakable noises of the plain chachalaca and the great kiskadee; the peculiar lifestyles of the hook-billed kite and the northern beardless-tyrannulet; and that's just the birds! Throw in transparent-winged butterflies, honey-making paper wasps, the critically endangered speckled racer, the formerly extinct (in the United States) aplomado falcon, 8-foot-long rattlesnake-eating Texas indigo snakes, the bizarre Mexican burrowing toad, the last few surviving ocelots in the country, and many other possibilities, and the lure of the brushlands becomes all but irresistible.

The human communities of the brushlands have taken to enhancing their appeal to travelling nature-lovers by sponsoring a variety of annual nature festivals. Harlingen's Rio Grande Valley Birding Festival is entering its 16th year of existence. Newer birding fests have arisen in Brownsville, McAllen and Laredo, while other yearly Valley festivals focus explicitly on butterflies or dragonflies. Further north in the brushlands, Kingsville and Three Rivers have gotten into the nature festival business as well.

The Lower Rio Grande Valley (LRGV) has the greatest biodiversity and highest concentration of subtropical species within the brushlands region. However, the rich floodplain soils and warm climate of the area made it an irresistible location for agriculture as well. Citrus, sugar, cotton, onions, and many other crops became big business in the Valley, while cattle ranches claimed most of the brushlands further north. The climate is the lure for a massive

and rapidly growing population, and the proximity to Mexico has become the engine for a booming economic expansion. Farmland and other development has claimed most of the Valley's land area. By some estimates, as much as 97 percent of the original habitat here is gone.

The area is threatened by more subtle forces as well. Non-native plant species, especially the pernicious duo of guinea grass and buffel grass, are overwhelming native ecosystems, crowding out wildflowers and native grasses, interfering with establishment of young trees and shrubs, and greatly increasing the risk of wildfire in an ecosystem not accustomed to frequent wildfire. The disturbance more natural to this area is flooding, especially the forests along the Rio Grande; but dams and water diversions have all but eradicated flooding from the Valley, leaving the highly, diverse floodplain forests dying for a drink.

Recognizing that the remaining wildlife habitat is valuable, local communities are taking steps to combat the threats to the brushlands. The first step is to protect the remaining habitat. The largest step in this direction was made by the federal government's U.S. Fish and Wildlife Service, which created the Lower Rio Grande Valley National Wildlife Refuge. The LRGV NWR includes dozens of tracts of land and many thousands of acres, scattered across all four of the Valley counties. The state of Texas has protected thousands of additional acres of brushland in the scattered units of the Las Palomas Wildlife Management Area. Fragments of critical habitat are in the hands of city and county governments, national nonprofits like The Nature Conservancy and the National Audubon Society, or independent local groups including the Valley Land Fund and Frontera Audubon.

As the remaining habitat has gained protection, agencies are working to reverse the trend of habitat destruction by creating new habitat in areas that had been cleared and developed. The World Birding Center is re-establishing brushland, forest and wetlands on sites that had formerly been a Harlingen landfill, an Edinburg sewage treatment plant, and



Green Jay

agricultural fields in Weslaco and Mission. The Rio Reforestation workdays and The Native Plant Project bring native plants to nature preserves, birding hot spots, and private homeowners alike. Smaller tracts have had great success locally, eliminating guinea grass and re-establishing native vegetation communities, while landowners and agencies tinker with remedies for more extensive lands. Private landowners, now intrigued by the potential profits of ecotourism, have taken active interest in improving the habitat quality of their lands and opening their properties to wildlife-watchers.

Flood deprivation may be the most challenging problem facing the LRGV. Chronic drought and upstream diversions reduce the water supply reaching the lower Valley. Demand from residential and agricultural use boosts prices and strains the budget of wildlife habitat managers. Even so, the past decade has seen long-dry areas immersed at a number of national wildlife refuge and state park tracts in deep South Texas.

After a century of being depleted and degraded, the 21st century sees the South Texas Brushlands taking its first steps in the other direction. Some of the most spectacular wildlife attractions in the region are sites which were all but devoid of wildlife a decade ago. Stiff challenges remain, but there is plenty of reason to look forward to the brushlands of the future.

Josh Rose is a natural resource specialist at Bentsen-Rio Grande Valley State Park of the World Birding Center in Mission, Texas.



Technical guidance in South Texas

By Alan Cain

South Texas is one of the most biologically diverse regions in the United States, home to over 1,100 plant species and 700 vertebrate species. Rich in a history of large sprawling cattle ranches such as the King, Kenedy, Piloncillo, East and many others, South Texas has been somewhat insulated from the numerous issues confronting wildlife and wildlife habitats. In fact, a recent publication from the Caesar Kleberg Wildlife Research Institute about the importance of South Texas to wildlife conservation is appropriately titled “The Last Great Habitat” — a very befitting moniker for this region.

South Texas boasts a world-class deer population, one of the last strongholds for bobwhite quail, a variety of rare species including the endangered ocelot, premier bird diversity drawing birders from across the globe, and diverse landscapes from coastal prairies to the thornshrub woodlands of the Rio Grande Plains. This unique ecological area would not be nearly as pristine as it is today were it not for the private landowners and their strong desire to maintain the integrity of the diverse ecosystems in South Texas. Since most of Texas is privately owned, 97 percent by some accounts, private landowners

are the key to sustaining the variety of plant, animal and bird life in this region.

As our state demographics change from a rural background to one of more urban or suburban composition, people become increasingly less intimate with the processes of the natural world and how to sustain these important natural plant and animal communities. Recently, South Texas has also experienced a shift from traditional cattle ranching to landowners buying property solely for hunting and outdoor recreation. Even traditional livestock operations have realized the value of wildlife-related activities and are incorporating these ventures into their business plans to maintain a financially stable ranch. With this shift in the value of wildlife and native habitats, it has become critical for both landowners and non-landowners to have the opportunity to seek professional unbiased guidance and information on management of our natural resources.

The TPWD technical guidance program has been instrumental in promoting wildlife and habitat conservation across Texas. The team of biologists in the South Texas wildlife district exemplifies what the technical guidance program can accomplish. Fourteen biologists covering 30 counties encompassing

approximately 21 million acres have brought over 6 million acres under management through more than 1,200 wildlife management plans. They have accomplished all of this in addition to the other jobs they are tasked with, including wildlife research, public outreach, and annual surveys of wildlife populations.

Through technical guidance, field biologists provide expertise to landowners and managers, leading to management and conservation of wildlife habitat and, thus, the various wildlife populations that utilize that habitat. Technical assistance comes in a variety of forms, including informative publications, field days teaching landowners about various habitat management techniques, and more detailed one-on-one visit to a landowner’s property resulting in a wildlife and habitat management plan. The benefits are reduced or stopped habitat fragmentation, habitat loss, urban sprawl, other critical issues affecting wildlife and wildlife habitat, and helping landowners to improve quality and quantity of native habitats and wildlife. Habitat is the cornerstone of wildlife management, and without habitat we will not have wildlife and

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natural resources to enjoy. As technical guidance biologist Jimmy Rutledge stated, "The days I'm in the field is where I feel I'm making a difference for the wildlife and the people of the state of Texas." Citizens of Texas all benefit from technical guidance whether we own a piece of land or not. Sound wildlife and habitat management practices translate into more than just sustaining healthy habitats and wildlife populations. Water conservation ensures that our rivers, streams, and aquifers provide clean water. Land conservation enhances our ability to produce our food and to provide places where we can get away and enjoy the peaceful outdoors.

Without private landowners, wildlife conservation would be a difficult task. Rene Barrientos, a South Texas rancher, is a classic example of the benefits of the technical guidance program. Rene purchased an 8,000-acre "worn-out" old ranch in La Salle County in 1995. It had been severely overgrazed and root-plowed, and had very little water other than a section of the Nueces River — not very good conditions for wildlife. Not unlike many landowners in South Texas, Rene was concerned with the quality of his deer herd as well as

improving overall habitat conditions. Barrientos contacted technical guidance biologist Jimmy Rutledge about the technical guidance program and what could be done to improve the wildlife conditions. Rutledge and Barrientos began formulating a wildlife management plan and defining specific goals for improving habitat and wildlife conditions on the ranch. Barrientos took some convincing on how exactly that would best be accomplished. "When he first contacted me," Rutledge says, "it's fair to say that he didn't think much of my ideas. We laugh about it now, but in that first phone call he was somewhat skeptical."

Using prescribed burning, rotational grazing and cross-fencing, disking, deer harvest, water improvements, and a host of other habitat management tools, Barrientos has transformed that old "worn-out" ranch into a paradise for wildlife. Over 150 bird species have been documented on the ranch, Texas horned lizards are not a rare sight, and healthy shrubs and native grasses such as guayacan and Arizona cottontop are common. As for the quality of the deer herd, the proof is in the harvest. With an initial management plan goal of being able to harvest six bucks scoring over 160 B&C, the ranch has far surpassed that goal with over 16 bucks exceeding that magical 160 B&C mark this year.

Mr. Barrientos received the Texas Parks and Wildlife Department Lone Star Land Steward Award in 2004. The Lone Star Land Steward Awards program recognizes and honors private landowners for their accomplishments in habitat management and wildlife conservation. The program is designed to educate landowners and the public and to encourage participation in habitat conservation.

"I think recognition of the ranch, not necessarily the individual, bears testament to Parks and Wildlife, especially their technical guidance program, which assists landowners," said Barrientos. "It's not Parks and Wildlife that sets the goals, but they work with the landowners to set objectives in designing a plan that's not species-specific, but it helps everything in improving the habitat."

Contact your local biologist if you are seeking technical assistance or would like to know how you can manage, improve, and maintain the wildlife and native habitats on your property. You can find your local biologist by following this link on the TPWD Web site: http://www.tpwd.state.tx.us/landwater/land/technical_guidance/biologists/

Alan Cain is District Leader for the Wildlife Division in South Texas.





Amphibian watching in South Texas

By Lee Ann Linam
with excerpts from the notes of David Martin

On the surface, South Texas doesn't seem like a great place to be an amphibian-watcher. Cactus, drought and small wetlands that dry up regularly are pretty hard on animals with semi-permeable skin. In reality, South Texas is unlike anywhere else for frogs. The Lower Rio Grande Valley is home to 21 anuran (frog and toad) species, five of which are native nowhere else in the United States. Many of these are remarkably adapted to the rigors of life in South Texas. The trick is to figure out when and where to find frogs in South Texas.

That's where David Martin stepped in. As a Texas Amphibian Watch volunteer, David has contributed significantly to our understanding of frogs in South Texas. David, a keeper in the Herpetology Department at Gladys Porter Zoo in Brownsville, provided data to Texas Amphibian Watch from 2001 until his departure from the zoo in 2007. He was invaluable as an instructor for Texas Master Naturalist workshops on amphibians, but his greatest contribution may have been the insights he provided into South Texas amphibian biology based on long, long hours in the dark along the roadsides of the Valley. He gathered data on 16 anuran species and three salamander species. David was generous in sharing his insights and field notes with Texas Amphibian Watch. Through the excerpts at right, everyone can gain an appreciation for the intricacies of amphibian life histories in the Lower Rio Grande Valley and the dedication of a true field herpetologist.

Lee Ann Linam is the coordinator of the Texas Nature Trackers program, working out of Wimberley, Texas.

[Photo and notes are excerpts from those submitted by David Martin to Texas Amphibian Watch. Common names have been inserted throughout.]

Spooky Sounds, Bogged-down Trucks, and Sleepless Nights – Field Notes from a South Texas Herpetologist

David Martin
2001

*I made a preliminary run of my Starr County route in June. It had rained about 2 inches the previous day. This was the most significant rain even on the route all year. I heard almost nothing, only a few great plains narrow-mouth toads (*Gastrophryne olivacea*) at one station. It demonstrated to me that in that area, intense deluges are necessary to have any significant calling in the summer. Just to the south, near Rio Grande City, it had rained about 4 inches. This was sufficient to bring out Texas toads (*Bufo speciosus*) and a few green toads (*Bufo debilis*), but not much else. This Sept., normally our wettest month, was again rather dry, and we ended the year with less than 17 inches. I believe there has been virtually no amphibian breeding on my route in the last eight months.*

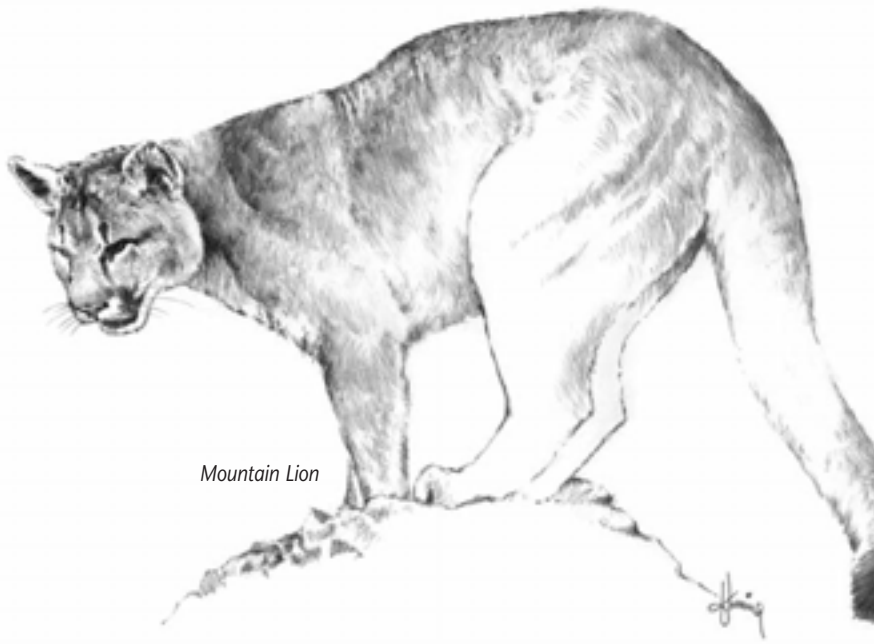
*In Willacy County, by contrast, there were two substantial rain events this spring. In a small area of southern Willacy County, it rained 5–6 inches in March, and again in April. Both times this elicited huge choruses of Texas toads and Couch's spadefoot toads (*Scaphiopus couchi*). The second time there were a few plains spadefoot toads (*Scaphiopus bombifrons*) mixed in. Yet a few miles to the north, where it rained only an inch or two on both occasions, there was no evidence of any spadefoot breeding.*

All in all, I think amphibian breeding was very patchy in South Texas this year.

For more of David's notes see the Eye on Nature e-newsletter at:
<http://www.tpwd.state.tx.us/newsletters/eye-on-nature/2009spring/>



Plains Spadefoot Toad
© David Martin



Mountain Lion

[Wildcats and the South Texas brushland, continued from page 2]

As professor with the Caesar Kleberg Wildlife Research Institute at Texas A&M University-Kingsville, I have been fortunate to supervise a cadre of highly skilled graduate students who have spent the past 25 years unlocking the ecological mysteries of these wildcats. And many of these projects have been funded by the Texas Parks and Wildlife Department (TPWD), including studies on ocelot ecology and detection with remote cameras, mountain lion ecology in southern Texas, mountain lion genetic variation and bobcat harvest studies. Currently, TPWD mammalogist John Young has been lead on another project with us—developing a model of mountain lion habitat and distribution.

Of Texas' cats, the mountain lion is the largest, usually weighing over 100 pounds. This size helps it take down its primary prey—white-tailed deer. In contrast, the smallest cat in Texas, the jaguarundi, weighs about 10 pounds or the size of a large house cat. Many of the jaguarundi sightings around Texas are actually black house cats looking for food along roadsides or in pastures. The last photograph of a jaguarundi occurred near Brownsville during 1986, and they were never documented north of the Rio Grande Valley, even during the 1800s or 1900s.

The bobcat and ocelot are medium-sized cats that weigh about 20 to 25 pounds. Bobcats are common over most of Texas, being habitat generalists that will use almost any environment. In contrast, ocelots are rare with a population of fewer than 100 individuals in southern Texas, and this represents its only occurrence in the United States. Ocelots are habitat specialists that use extremely dense thornshrub cover, so dense that people have major problems trying to move through it. Less than one percent of South Texas has this type of brush. Consequently, the ocelot is listed as endangered because of its rarity and scarce habitat.

Having been raised in South Texas with a life-long interest in wildlife, I have been fortunate to experience this great diversity in our native wildlife. And the variety of wildcats is icing on the cake.

Mike Tewes is a professor at Texas A&M University-Kingsville doing research on Texas cats.

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500,000 acre-feet per year. Scientists, policy-makers and lawyers are struggling to balance the water demands of a rapidly expanding human population with environmental flows for eight endangered or threatened species, including two salamanders, two fish, three invertebrates and a plant.

But the issue is not just about salamanders and cave bugs. It is about the lifeblood of river systems that support a multi-million-dollar tourism industry, sustains our bays and estuaries rich in marine life, and meets the demands of a swelling human population. An acre-foot of water equals 325,851 gallons. At my home in Austin, that amount of water would cost \$2,110.65 on my monthly water bill. The economic value of that same amount of water to fish and wildlife cannot be measured. What would the people of Texas be willing to pay for free-flowing rivers and the myriad of life depending on them?

Abundant, clean water in Texas is a public by-product of functioning ecosystems driven by private landowners. Placing a market value on this service is our greatest challenge as the debate surrounding limited water supplies intensifies. There are no easy solutions, but everyone has a stake in the outcome. Part of the solution lies in sacrificing the status quo for the greater good. And in the end, it is the people on the land who determine the fate of a raindrop, and we'll need to consider them in the economic equation as well.

Matt Wagner is the director of the Wildlife Diversity Program, working out of Austin.





The Back Porch

Water and wildlife in the marketplace

By Matt Wagner

Texas contains nearly 200,000 miles of streams and rivers.

Thirteen of the state's 15 rivers flow through metropolitan areas supplying water for more than 22 million people. Twenty percent of those people depend on a single river: the Trinity.

To supply water for people while balancing the needs for wildlife, positive things must happen on the landscape—95 percent of which is in private hands.

Consider the relationships of desert fish in a West Texas riparian area, migratory waterfowl dependent on our playa lakes, endangered salamanders in Hill Country springs, and the majestic whooping crane, whose existence depends on fresh water flows to our bays. These are only a few examples of

the fundamental relationship between free-flowing water and wildlife. We could name many, many more.

Each scenario depends on the fate of raindrops as they journey from sky to sea. A raindrop has three options once it reaches the earth's surface: It can flow across the ground, it can seep into the ground, or it can evaporate. The direction and rate of flow is directly influenced by managers of the land. Rain captured by a vegetated surface seeps downward and makes the grass grow. This in turn kick-starts the life cycle for millions of insects forming the base for a pyramid we call wildlife diversity.

As water continues its downward course past the root zone of grass, wildflowers and trees, it is stored in vast

underground basins called aquifers. The Ogallala Aquifer covers parts of eight states. Ninety-six percent of the water from the Ogallala is used for irrigated agriculture. Some landowners are leasing or selling their groundwater rights to water companies. Under this scenario, the amount of water pumped to grow cotton could be transferred to an urban area because of market demands. There are many questions: What are the impacts to agricultural economies, the farming life style, and alternative land uses? Would the land ultimately revert to short-grass prairie?

The Edwards Aquifer is in the news again. During the last legislative session, pumping limits were raised to over

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